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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,149	09/29/2005	Herbert Boerner	DE 020219	2960
24737 7590 07/09/2008 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
BREVAIL, ELMITO				
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2889				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/530,149

**Applicant(s)**

BOERNER ET AL.

**Examiner**

ELMITO BREVAL

**Art Unit**

2889

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 April 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-14 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 02 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/ISD)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 04/02/2008 have been fully considered but they are not persuasive. The applicant is made one argument: Yazawa reference does not teach a dielectric transparent layer having a high refractive index  $n$  adjoining an electrode. The examiner respectfully disagrees. Yazawa (in col. 5, lines 10-15) teaches the element portion comprises a transparent first electrode made of ITO, a transparent first insulating layer formed of transparent tantalum pentoxide ( $Ta_2O_5$ ; 'this is a high refractive material') and the like.

### ***Claim Objections***

Claim 10 is objected to because of the following informalities: "the electroluminescent display of claim 10" should be "the electroluminescent display of claim 1 or 9". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yazawa et al., (US. Pat: 5,804,918) of record by the examiner.

**Regarding claim 1**, Yazawa ('918) teaches (in at least fig. 1) an electroluminescent display comprising a common substrate (1), and an array of electroluminescent devices (10) disposed on the common substrate (1), wherein each of said electroluminescent devices comprise an electroluminescent layer (6) which is sandwiched between a first and a second electrodes (4, 8), a color converting material which is capable of changing light emitted by the electroluminescent layer (6) into light having a longer wavelength (col. 4, lines 55-63) and a stack of  $2n + 1$  transparent dielectric layers wherein  $n = 0, 1, 2, 3, \dots$ , (col. 4, lines 55-60) said transparent dielectric layers having a refractive index of  $n > 1.7$  or a low refractive index of  $n \leq 1.7$  (col. 3, lines 66- col. 4, lines 4) said transparent dielectric layers having a high refractive index  $n$  (col. 4, lines 55-60) being arranged in alternating manner with said transparent dielectric layer having a low refractive index  $n$  (col. 4, lines 55-60), said stack of  $2n + 1$  transparent dielectric layers being arranged adjacent to one of the electrodes and a dielectric transparent layer having a high refractive index  $n$  adjoining said electrode (col. 5, lines 10-16; "tantalum pentoxide formed on ITO.")

**Regarding claim 2**, Yazawa ('918) teaches the transparent dielectric layer having a refractive index  $n > 1.7$  is selected from the group consisting of  $ZnS$ ,  $TiO_2$ , and  $SnO_2$  (col. 5, lines 19-22).

**Regarding claim 3**, Yazawa ('918) teaches the transparent dielectric layers having a refractive index  $n \leq 1.7$  is selected from the group consisting of  $S'O_2$  (col. 4, lines 3-4).

**Regarding claim 5**, Yazawa ('918) teaches (in at least fig. 2) the electroluminescent device is an active matrix device having a pixelated first electrode (4).

**Regarding claim 6**, Yazawa ('918) teaches (in at least fig. 2) a capping layer (7) is placed adjacent to the second electrode (8) and wherein the color converter material is embedded in the capping layer (col. 5, lines 10-25).

**Regarding claim 8**, Yazawa ('918) teaches (in at least fig. 1) an electroluminescent device comprising an electroluminescent layer (6) which is sandwiched between a first and a second electrode (4, 8), a color converting material which is capable of changing light emitted by the electroluminescent layer (6) into light having a longer wavelength (col. 4, lines 55-63) and a stack of  $2n + 1$  transparent dielectric layers wherein  $n=0, 1, 2, 3, \dots$ , (col. 4, lines 55-60), said transparent dielectric layers having a high refractive index of  $n > 1.7$  or a low refractive index of  $n \leq 1.7$  (col. 3, lines 66-col.4, line 4), said transparent dielectric layers having a high refractive index  $n$  being arranged in alternating manner with said transparent dielectric layers having a low index  $n$  (col. 4, lines 55-60), said stack of  $2n + 1$  transparent dielectric layers being arranged adjacent to one of the electrodes (4) and a dielectric transparent layer having a high refractive index  $n$  adjoining said electrode (col. 5, lines 10-16; 'tantalum pentoxide formed on ITO').

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner in view of Leising et al., (US. Pat: 6,117,529) of record by the examiner.

**Regarding claim 4**, Yazawa ('918) teaches all the claimed limitations except for the transparent dielectric layers having a low refractive index is MgF<sub>2</sub>.

Further regarding claim 4, Leising ('529) in the same field of endeavor teaches an organic electroluminescent device comprised of, in part, a low refractive transparent dielectric layer made of MgF<sub>2</sub> (col. 5, line 64) for the purpose of improving the luminance efficiency of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the dielectric material of Leising into the device of Yazawa for the purpose of improving the luminance efficiency of the device.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner in view of Shimizu (US. Pat: 5,003,221) of record by the examiner.

**Regarding claim 7**, Yazawa ('918) teaches all the claimed limitations except for the color converting material is selected from the group consisting of (B, Sr)2SiO<sub>4</sub>:Eu, SrGa<sub>2</sub>S<sub>4</sub>:Eu, CaS:Ce, Ba<sub>2</sub>ZnS<sub>3</sub>:Ce, K, Lumogen yellow ED206, (Sr,Ca)2SiO<sub>4</sub>:Eu, (Y,Gd)3(Al, Ga)5O<sub>12</sub>:Ce, Y3Al<sub>5</sub>O<sub>12</sub>:Ce, Lumogen F orange 240, SrGA<sub>2</sub>S<sub>4</sub>:Pb,

Sr<sub>2</sub>Si<sub>5</sub>N<sub>8</sub>:Eu, SrS:Eu, Lumogen F red 300, Ba<sub>2</sub>Si<sub>5</sub>N<sub>8</sub>:Eu, Ca<sub>2</sub>Si<sub>5</sub>N<sub>8</sub>:Eu, CaSiN<sub>2</sub>:Eu and CaS:Eu.

Further regarding claim 7, Shimizu ('221) in the same field of endeavor teaches an organic electroluminescent device comprised of, in part, color converting materials wherein the color converting materials is selected from the group consisting of CaS: Ce and SrS:Eu (col. 15, lines 8-10) for the purpose of improving the luminance efficiency of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting materials of Shimizu into the device of Yazawa for the purpose of improving the luminance efficiency of the device.

Claim 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yazawa et al., (US. Pat: 5,804,918) of record by the examiner in view of Tang et al., (US. Pat: 5,294,870) of record by the examiner.

**Regarding claims 9 and 12**, Yazawa ('918) teaches all the claimed limitations except for the color converting material is configured to convert blue light to at least one of red and green light.

Further regarding claim 9, Tang ('870) in the same field of endeavor teaches an electroluminescent device, comprised of, in part, a color converting material configure to convert blue light to at least one of red and green light (col. 8, lines 15-22) for the purpose of emitting red and green light.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material of Tang into the device of Yazawa for the purpose of emitting red and green light.

**Regarding claims 10 and 13,** Yazawa ('918) teaches all the claimed limitations except for the blue light passes through the electroluminescent device substantially without loss.

Further regarding claim 10, Tang ('870) teaches an electroluminescent lamp comprised of, in part, a blue color converting material wherein the blue light passes through the electroluminescent device substantially without loss (col. 8, lines 54-56) for the purpose of emitting a blue light without any shift in color.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the blue light converting material of Tang into the device of Yazawa for the purpose of emitting a blue light without any shift in color.

**Regarding claims 11 and 14,** Yazawa ('870) teaches all the claimed limitations except for the color converting material is configured to convert blue light to red light for a first sub-pixel, and to convert the blue light to green light for a second sub-pixel, and wherein the blue light passes through the electroluminescent device substantially without loss for a third sub-pixel.

Further regarding claims 11 and 14, Tang ('870) teaches an electroluminescent device comprised of, in part, a color converting material wherein the color converting material is configured to convert blue light to red light for a first sub-pixel, and to convert the blue light to green light for a second sub-pixel, and wherein the blue light passes



through the electroluminescent device substantially without loss for a third sub-pixel (col. 8, lines 8-68) for the purpose of having good luminance efficiency of the device.

Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the color converting material as taught by Tang into the device of Yazawa for the purpose of improving the luminance efficiency of the device.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **ELMITO BREVAL** whose telephone number is (571)270-3099. The examiner can normally be reached on M-F (8:30 AM-5:00 Pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Toan Ton can be reached on (571)-272-2303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 28, 2008  
Examiner  
Elmito Breval

/Joseph L. Williams/  
Primary Examiner, Art Unit 2889